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ABSTRACT

In response to the increased awareness of substance abuse among youth, the Drug-Free Schools and Communities Act (DFSCA) was enacted to boost drug and alcohol abuse education and prevention programs. A number of initiatives to evaluate these programs were started, and one such assessment, a longitudinal study of school-based prevention programs, is described in this summary. For the study, about 10,000 students were surveyed annually for 4 years. The major findings indicate that some drug prevention programs improved student outcomes, but effects were small. Outcomes were better in districts where the prevention program had greater stability over time. Few schools, though, used programs that had been deemed effective in previous research, and program delivery was variable and inconsistent, even within schools. Many programs featured multiple components, such as classroom instruction combined with student support services. Students in the survey mirrored the behaviors, beliefs, and attitudes about drugs found in national trends, and alcohol was the most widely used substance for students at any grade level. Some of the factors that lowered drug use included sports and exercise, volunteer work, and homework. It is recommended that larger social influences be considered in future research. (RJM)

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School-Based Drug Prevention Programs: A Longitudinal Study in Selected School Districts

Executive Summary

Final Report

U.S. Department of Education
Planning and Evaluation Service

1997

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CG 028 342

School-Based Drug Prevention Programs: A Longitudinal Study in Selected School Districts

Executive Summary

Final Report

1997

Prepared for:

U.S. Department of Education
Planning and Evaluation Service

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Table of Contents

Executive Summary ..... E - 1
The Drug-Free Schools and Communities Act ..... E - 1
Overview of the Longitudinal Study of School-Based Prevention Programs ..... E - 1
Background ..... E - 1
Brief Overview of Study Procedures ..... E - 7
Discussion of Study Findings ..... E - 8
Variations and Inconsistencies in Program Delivery ..... E - 8
Student Behaviors, Beliefs, and Attitudes About Drugs ..... E - 10
Alcohol ..... E - 10
Cigarettes ..... E - 11
Marijuana ..... E - 11
Inhalants ..... E - 12
First use of alcohol and other drugs ..... E - 12
Perceived peer use of drugs ..... E - 13
Relationship of Violence and Gang Activity, School Experiences, and Use of Time to Student Drug Use ..... E - 14
Violence ..... E - 14
School experiences ..... E - 16
Students' use of time ..... E - 16
Drug Prevention Programs and Their Effects on Student Outcomes ..... E - 17
Factors affecting the programs ..... E - 20
Student participation in the prevention programs ..... E - 20
Conclusions ..... E - 22
Additional Implications of the Findings ..... E - 26

List of Exhibits

Exhibit E-1.	30-Day and Heavy Use of Alcohol Over 4 Years, by Cohort	E - 10
Exhibit E-2.	Lifetime Alcohol Use Over 4 Years, by Cohort	E - 11
Exhibit E-3.	30-Day Use of Cigarettes Over 4 Years, by Cohort	E - 12
Exhibit E-4.	Grade for First Use of Drugs	E - 13
Exhibit E-5.	Percent of Students Who Believed Some of Their Friends Used Drugs in the Last 30 Days	E - 14
Exhibit E-6.	Percent of Students Reporting Violence and Gang Activity at Schools (1995)	E - 15
Exhibit E-7.	Correlations Between School Experience and Student Outcomes in Year 4	E - 16
Exhibit E-8.	District Scores on Dimensions of Program Strength, Arranged in Descending Order of Strength	E - 18
Exhibit E-9.	Distribution of District Prevention Programs' Scores on Program Strength	E - 19
Exhibit E-10.	Distribution of District Prevention Programs' Scores on the Four Factors of Program Strength	E - 19
Exhibit E-11.	Percent of Students Who Reported Participation in Specific Program Components	E - 21

Executive Summary

The Drug-Free Schools and Communities Act

In response to the increased awareness of alcohol and other drug abuse among youth, Congress enacted the Drug-Free Schools and Communities Act (DFSCA) in 1987 to expand and strengthen drug and alcohol abuse education and prevention programs in communities throughout the nation. The Executive Branch and the Congress designed the DFSCA to encourage and support broadly based cooperation among schools, communities, parents, and governmental agencies to bring the nation significantly closer to the goal of a drug-free generation and a drug-free society. Since then, Congress reaffirmed its belief in the critical role of the nation's schools in achieving this goal through several amendments to the law in 1988, 1989, and 1990.

As safety in our schools became a more and more pressing concern — as reflected in the national education goals for the year 2000, which include a goal for safe, disciplined, and drug-free schools — Congress reauthorized the DFSCA as the Safe and Drug-Free Schools and Communities Act of 1994, Title IV of the Elementary and Secondary Education Act. It is now referred to as SDFSCA.[1]

The U.S. Department of Education administers the SDFSCA and annually distributes funding to the states based primarily on the number of school-aged youth. States receive SDFSCA State Grant funds through two avenues: (1) state educational agencies (SEAs) receive approximately 80 percent of the total state allotment to support school-based programs, and (2) Governors' offices, or agencies designated by the Governors, receive 20 percent for the support of school- or community-based prevention programs for youth. SEAs are required to target 30 percent of their State Grant funds to high-need districts.

Overview of the Longitudinal Study of School-Based Prevention Programs

Background

In the fall of 1990, the U.S. Department of Education (ED) and Research Triangle Institute (RTI) began a five-year study of school and community programs to prevent alcohol and other drug use among school-aged youth. The study was designed to inform ED and other decision makers about

[1] We use the designation "DFSCA" throughout this report since that was the version of the law in effect during this study.

the activities and effects of these programs. The overall study had three components that, together, aimed to contribute to a greater understanding of what works in prevention and for whom. The component studies were:

- an effort to identify and describe effective community-based programs funded through the Governors' DFSCA programs[2];
- the third and fourth congressionally mandated biennial surveys, covering the periods 1991-93[3] and 1993-95[4], respectively, of state-level administration of DFSCA; and
- a longitudinal study of school-based prevention programs.

This report addresses the third component study, the longitudinal study of school-based prevention programs.[5]

The purpose of the longitudinal study was to investigate the effectiveness of school-based prevention programs in school districts receiving funds through DFSCA. Because virtually all districts in the country receive at least some DFSCA funding and conduct some types of prevention activities, implementation of an experimental design to establish the effects of prevention instruction and other services on students' attitudes, beliefs, and behavior regarding alcohol and other drugs was not possible. Consequently, ED conceived a design that would compare outcomes of students in local school districts whose prevention activities were "comprehensive" with those of students in districts that were operating programs that could be defined as "minimal." We defined "comprehensive" school district prevention programs as those having:

- prevention instruction in all schools and all grades from kindergarten through twelfth grade, coordinated and articulated in some manner across the grades,
- at least three components or activities in addition to classroom instruction that were intended to help reduce risk factors for drug use,
- community involvement in the prevention program, and
- training for staff who provided prevention instruction and activities.

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[2]*Community-Based Prevention Services for High-Risk Youth: A Study of the Governors' DFSCA Program.* RTI report to the U. S. Department of Education, 1994.

[3]*Characteristics of DFSCA State and Local Programs, Summary of the 1991-93 State Biennial Performance Reports.* RTI report to the U. S. Department of Education, 1996.

[4]This survey is scheduled for completion in October 1997.

[5]Two other reports have been produced for this study: *First Interim Report, Outcomes of DFSCA State and Local Programs, 1993; and Local Education Agency Cross-Site Analysis.*

To implement this design, we undertook activities to classify district prevention programs as comprehensive or comparison and matched districts in each category according to demographic and other factors thought to be associated with attitudes, beliefs, and behaviors regarding use of alcohol and other drugs. In the selected districts, we surveyed a sample of about 10,000 students annually for four years and gathered program implementation data from the schools they attended.

What we learned in the course of this study was not exactly what we set out to learn. First, we discovered that, while we thought we had selected programs at the two ends of a fairly long continuum, we found (after gathering extensive data) that the ***programs would be better described as falling along the continuum*** of "comprehensiveness." In fact, the two initial groups of district programs (comprehensive and comparison) overlapped along the continuum— they were not two distinct groups at all. Although this meant that our original plans to contrast the outcomes of the two groups of programs were not very meaningful, it provided an excellent opportunity to look closely at a wide variety of school-based prevention programs and examine the relationships between many of their component parts and our primary concern: student drug use, attitudes, and beliefs.

Second, the ***prevention programs varied so much within districts*** that the classification of programs at the *district* level as comprehensive or comparison was not meaningful. Further, *none* of the programs approached the comprehensiveness or extensiveness of those found by other researchers, in controlled situations, to be effective in preventing alcohol and other drug use among youth. The lack of fully comprehensive programs might not be surprising, given the level of funding most of the school districts received through DFSCA and other sources during this time period: about $10 per student per year, including state and local funds.

Finally, we also learned a great deal about:

- students' behaviors with regard to alcohol and other drugs and their beliefs and attitudes about these substances;
- risk indicators and other correlates of students' drug-use behavior;
- the districts' and schools' drug prevention programs — and students' participation in those programs; and
- the relationship of some of the program components to student drug use outcomes.

In the next few pages we highlight what we consider to be the most important findings of the study. Thereafter we return briefly to a description of the study design, followed by a more complete discussion of the study findings and our conclusions. The full report of this study contains far more

details about study design and findings than we can present in this brief summary, and we encourage the reader to look there for further discussion of the findings and issues raised in this summary.

Summary of Study Findings

★ Some drug prevention programs improved student outcomes, but effects were small

We examined the characteristics of prevention programs in the participating districts as well as students' reported participation in prevention instruction and activities. We were not able to determine what features of classroom instruction (i.e., which curricula, which teaching methods, or how many hours) or which student support services/activities were most effective, but we did find that:

- Student outcomes were somewhat better in districts where the prevention programs had ***greater stability*** over time and in districts with ***more extensive program components***, including student support services. Though significant, the differences in terms of student outcomes were small.
- Students who said they had participated in either or both of the following activities had better outcomes: prevention-related classroom instruction and special schoolwide events (such as Red Ribbon week and drug-free dances and parties).

★ Few schools employed program approaches that have been found effective in previous research

- The consensus of the current research literature in the area of drug prevention is that certain approaches, such as those that teach children how to resist and deal with the powerful social influences for using drugs and those that correct the misperceptions of peer drug use, have the greatest potential for making a difference for students. However, these approaches are rarely implemented. A likely reason is the higher cost of these program approaches, particularly in terms of teacher training and staff time.
- While all school districts conducted informal assessments of their programs periodically, fewer than half conducted and responded to the evidence of more formal evaluations in selecting or altering their programs.

★ Program delivery was variable and inconsistent, even within schools

- The amount and content of prevention programming varied greatly from classroom to classroom and school to school, even within districts that were attempting to deliver consistent programs.

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Summary of Study Findings (continued)

The strongest theme that emerged throughout our examination of the drug prevention programs in the participating districts was ***variability.*** We found at least as much variation in the delivery of prevention program components within districts as among them — at the school level, at the classroom level, and at the student level. Rather than planned variation between districts we had identified initially as comprehensive and their comparison districts, what we found was primarily the result of inconsistent implementation. Teachers and counselors simply did not have enough time, support, training, or motivation to provide all the instruction or other services and activities that they had planned to provide. Clearly, this variability had an impact on our ability to describe program delivery, let alone to assess program effectiveness. The extent of variability in program delivery is an important finding in its own right.

Programs employed multiple components

- Most of the schools in the study provided both classroom instruction and student support services as part of their drug prevention efforts.

  While much of the literature on research and practice in drug prevention conceives of and describes school-based programs as consisting primarily or solely of classroom-based instruction, we found that all of the study's districts ***combined such instruction with nonclassroom-based activities and support services***. In fact, at least one district prevention program coordinator considered the nonclassroom-based activities to be far more important than classroom instruction. We refer here to activities such as student assistance programs, student support groups, individual counseling, group counseling, mentoring projects, conflict mediation, assemblies, and drug-free dances and school events, all of which are intended to prevent drug use.

Student behaviors, beliefs, and attitudes about drugs mirrored national trends

Our data base of self-report surveys from a longitudinal sample of approximately 10,000 students gave us an opportunity to examine changes in student drug use over time and the relationship between student drug use and a number of important factors. Although the student responses derive from a non representative sample of 19 districts, the magnitude and change in drug use are remarkably consistent with national trends. Among the noteworthy findings are those presented below. Like the other findings summarized in this section, these are discussed in somewhat greater detail later in this executive summary and in the full report.

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Summary of Study Findings (continued)

- ***Alcohol was the most widely used substance for students at any grade level, and it was also the first drug that most students tried.*** One-third of the students surveyed had tried alcohol (more than just a sip) prior to or while in grade 5. Eighteen percent of eighth graders and 24 percent of ninth graders reported being heavy users of alcohol.
- ***Students believed that their peers approved of drugs more than they themselves did*** (and more than the peers reported) and also held inflated beliefs about the amount of drugs their peers used.
- The use of drugs was ***related to violent behavior in schools***. A much larger percentage of current users of alcohol and/or other drugs (32 percent of them) reported being involved in school fights as the aggressors than did current nonusers (14 percent of those students) or students who had never tried drugs (6 percent).
- Higher levels of reported gang activity and violence at school were significantly associated with greater drug use and more tolerant views toward drugs.
- Students who said they had ***positive school experiences*** (enjoyed school, tried to produce their best work, found classes interesting) were significantly less likely to use drugs than their peers who had negative experiences with school (hated school, found the work too difficult, frequently failed to complete assignments, misbehaved).
- Activities associated with lower drug use included ***sports and exercise, volunteer work, and spending more than two hours per day on homework***; spending more time on video games or watching television was associated with greater drug use.
- Students do most of their drinking of alcohol at friends' houses and at parties. While administrators in most of the schools we visited told us that there was little or no drug use on their school property, students reports indicate some use there. Eleven percent of eighth and ninth graders reported drinking at school events (after school hours) during the past year and 11 percent reported drinking at school during the school day.

Larger social influences should be considered in any future research

- Given the small impact of programs reported in this study, larger social influences need to be addressed in rethinking drug prevention efforts.

Wide variations in student drug use in the different communities studied suggest that research should explore alternative models that can influence social norms affecting student behavior. While the school has an important role, interventions that go beyond school-based programs may be needed in many communities. This may require the integration of school-based approaches in broader community partnerships to curtail drugs. We currently lack research on how to do this effectively and what the outcomes might be.

Brief Overview of Study Procedures

As we noted above, we classified district prevention programs as either comprehensive or comparison, starting with a data base of about 1,800 school districts. We matched districts in each category on demographic characteristics, and then selected pairs of districts for participation in the study on the theory that comparing students in districts with widely differing levels of prevention activity provided the best available opportunity to detect the effects of prevention activities on participating youth.

Over a four-year period, in school years 1991-92, 1992-93, 1993-94, and 1994-95, we surveyed about 10,000 students annually and gathered program implementation data in nine pairs[6] of school districts across the country. As noted above, each pair comprised districts with similar demographic characteristics (district enrollment, student racial/ethnic composition, poverty level, and population density) but with very different prevention programs. One of the districts in the pair operated a prevention program that provided activities to all students K-12[7] and had characteristics that, based on the prior research in the field, led us to expect that they would have the best chance of proving successful at reducing and/or delaying drug use among students in those districts. The second district in each pair had a more limited number of prevention program components (for example, only classroom instruction or only special events) and did not deliver those components to all students K-12. In this report we refer to these district prevention programs as "comprehensive programs" and "minimal" or "comparison programs," respectively.

In each participating school district, we made annual visits over a four-year period to obtain detailed information on the implementation of prevention program components. During the visits, we conducted interviews with district prevention program coordinators, school staff (e.g., principals, teachers, counselors), parents, advisory council members, students, and others involved with the prevention programs. Site visitors also reviewed program materials and observed prevention activities such as classroom instruction, student support groups, assemblies, and special events.

We compiled the implementation and program delivery data into a case study file for each district, organized to facilitate data reduction and summary. Major sections of this data file included (1) district and community demographic context; (2) program components, activities, and initiatives, at

[6]The final group of participating districts included 19 districts — one "pair" included one comprehensive district and two matching comparison districts.

[7]It should be noted that not all students in the *study* had received prevention education in each of their years in school. That is, in several districts, K-12 programs began in 1989 or 1990, after the study participants were in second or third grade.

both district and school levels; (3) changes in district program goals and objectives; and (4) funding and evaluation. We have used these data to compare and contrast programs, summarize approaches to drug prevention, and illustrate key points regarding program delivery, quality of services, and other relevant topics.

Each spring, we conducted student surveys with approximately 10,000 students across the 19 districts. We guaranteed the students that their responses were confidential, that no one other than a small number of study staff at RTI's main offices would see the individual responses and that we would report responses only in the aggregate. We discussed our safeguard procedures with the students at each survey administration and carefully protected their privacy. We selected students as fifth and sixth graders in 1991-92, then followed them longitudinally until they reached the eighth and ninth grades. Each year we gathered data on students' self-reported use of alcohol and other drugs, as well as related measures including attitudes and beliefs towards drugs, self-esteem, and peer pressure.

The student-level data base included demographic data (e.g., current grade, current school, gender, race/ethnicity, date of birth) as well as annual responses to questions on drug use, attitudes, beliefs, and feelings towards drugs. In addition, during the final two years of the study, the survey asked students about their participation in particular prevention program components and activities offered in their district or school. The structure of the data bases permitted linking student data to school and district data as well as linking individual students' data from one year to the next to observe trends in behaviors and attitudes.

Discussion of Study Findings

Variations and Inconsistencies in Program Delivery

As mentioned above, the strongest theme that emerged from our examination of drug prevention programs in the districts and schools was tremendous variability. This variability showed up in the amount of classroom instruction related to prevention, the specific content of classroom instruction, the methods used for presentation of materials, the availability of support services for students, and the frequency and type of special prevention-related events.

At all grade levels, teachers varied greatly in the amount of time they devoted to prevention instruction. Even where district administrators mandated or strongly recommended a specific number of hours for prevention instruction per grade per year, teachers devoted inconsistent amounts of time to this subject matter. For example, health teachers for students at the same grade level in one school cited instructional time per class per year that ranged from 12 to 26 hours. Teachers in a given school

did not always use a common set of prevention curriculum materials; but even when they did, they presented or omitted different sections or activities.

Some specific schools provided exceptions to the rule of variability, and teachers in those schools followed nearly identical lesson plans and apparently devoted very similar amounts of class time to drug prevention. In each of these schools, an identified leader (the equivalent of a building-level prevention program coordinator) provided training, encouragement, and feedback to the teachers.

Inconsistent delivery of prevention information may be due in large part to the heavy reliance on classroom teachers in subjects other than health to implement these activities. Many teachers told us they had not received sufficient training; others were not comfortable with some of the subject matter or with the interactive teaching methods recommended in the curriculum guides. Still others saw drug prevention as "just one more thing to add to an already full school day." This was especially true at the high school level, where several prevention program staff from various districts doubted that teachers were regularly integrating prevention instruction into academic courses even though the teachers had agreed to do so. For their part, teachers reported that they received differing and conflicting messages about the priority of prevention instruction and so used considerable discretion in how much and when to teach classroom components of the program.

Although many schools intended to provide nonclassroom-based prevention activities designed for high-risk students (activities that we have called student support services in this study), the availability of this kind of support was often very limited. In most schools, these services rely primarily on counselors and some teachers; most elementary schools did not have full-time counselors and some had no counselors at all. At the junior and senior high school levels, several counselors reported that, with student-to-counselor ratios approaching 500 to 1, they had time for crisis management only. Elementary, middle, and high schools in one of our districts, however, did provide ongoing support groups for high-risk students. The groups were led by teachers who were not only trained by the district prevention program coordinator, but also received stipends in addition to their regular salaries and/or were released from responsibility for part of their regular class load.

We note that current experts in the field of drug prevention say that inconsistent or incomplete delivery of the prevention curriculum is one of the main reasons why even those approaches that have proven effective under test conditions may not show positive results when implemented elsewhere.[8]

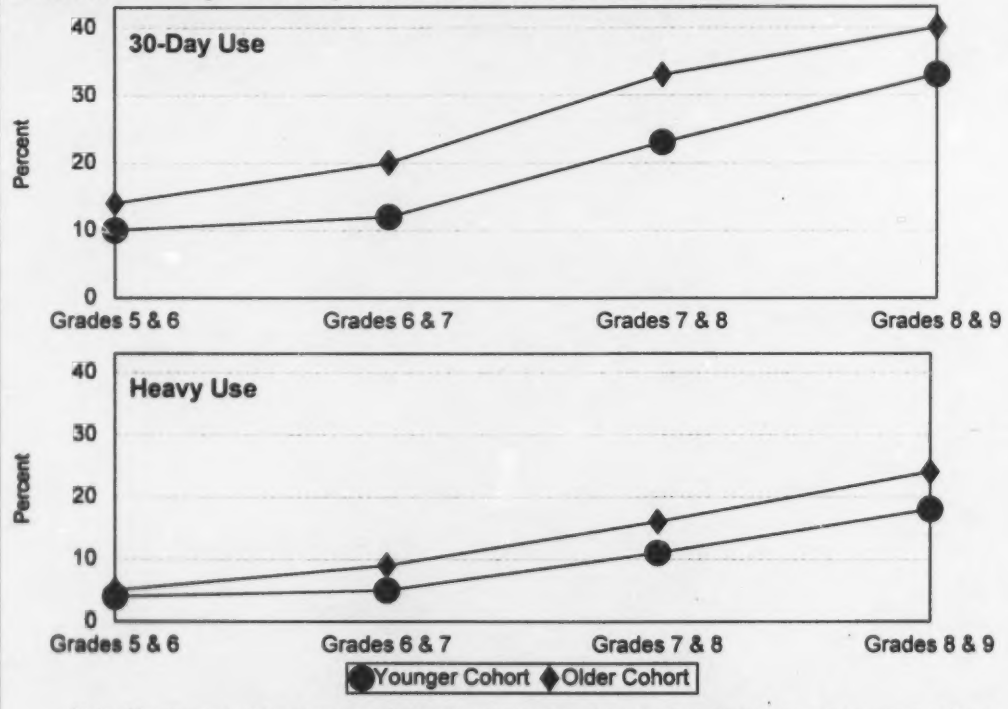
[8]Rohrbach, L.A., D'Onofrio, C.N., Backer, T.E., & Montgomery, S.B. (1996). Diffusion of school-based substance abuse prevention programs. *American Behavioral Scientist,* 39 (7), 919-934.

Student Behaviors, Beliefs, and Attitudes About Drugs

During each of the four years of the study (spring of 1992-1995), we asked the students a set of questions about their use of alcohol, cigarettes, marijuana, inhalants, smokeless tobacco, and cocaine. In addition, we asked them about attitudes toward drug use, perceptions of their peers' drug use and attitudes, and their ability to refuse drugs offered to them.

Alcohol. Consistent with other studies, we found that alcohol was the most commonly used drug among students. As one student admitted in an unsolicited comment he made on his survey, "I know alcohol is bad, but it tastes good. I like it." ***Exhibit E-1*** shows results for 30-day use (any use in the 30 days prior to the survey) and "heavy use" (drinking more than ten times or drunk at least once in the past 30 days). Both of these measures showed steady increases over the four years, for each of the cohorts.[9] As eighth and ninth graders, 37 percent of the students had tried alcohol in the 30 days prior to the survey and 21 percent reported heavy use. We note also that many students began drinking alcohol at a young age. As shown in ***Exhibit E-2***, 33 percent of the younger cohort students (fifth

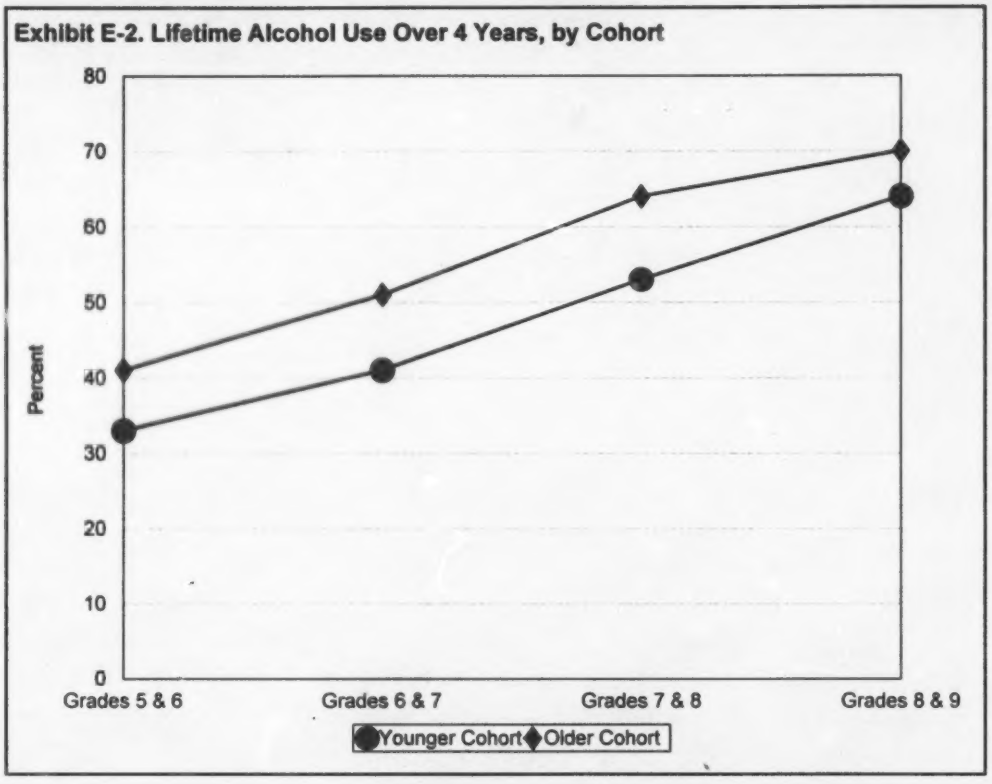
Exhibit E-1. 30-Day and Heavy Use of Alcohol Over 4 Years, by Cohort



Note: Heavy use is defined as use of alcohol more than ten times in the last 30 days or being drunk at least once in the past 30 days.

[9]We differentiate the students in the study into two cohorts — those who began as fifth graders constitute the younger cohort, while those who began as sixth graders are members of the older cohort.

Exhibit E-2. Lifetime Alcohol Use Over 4 Years, by Cohort

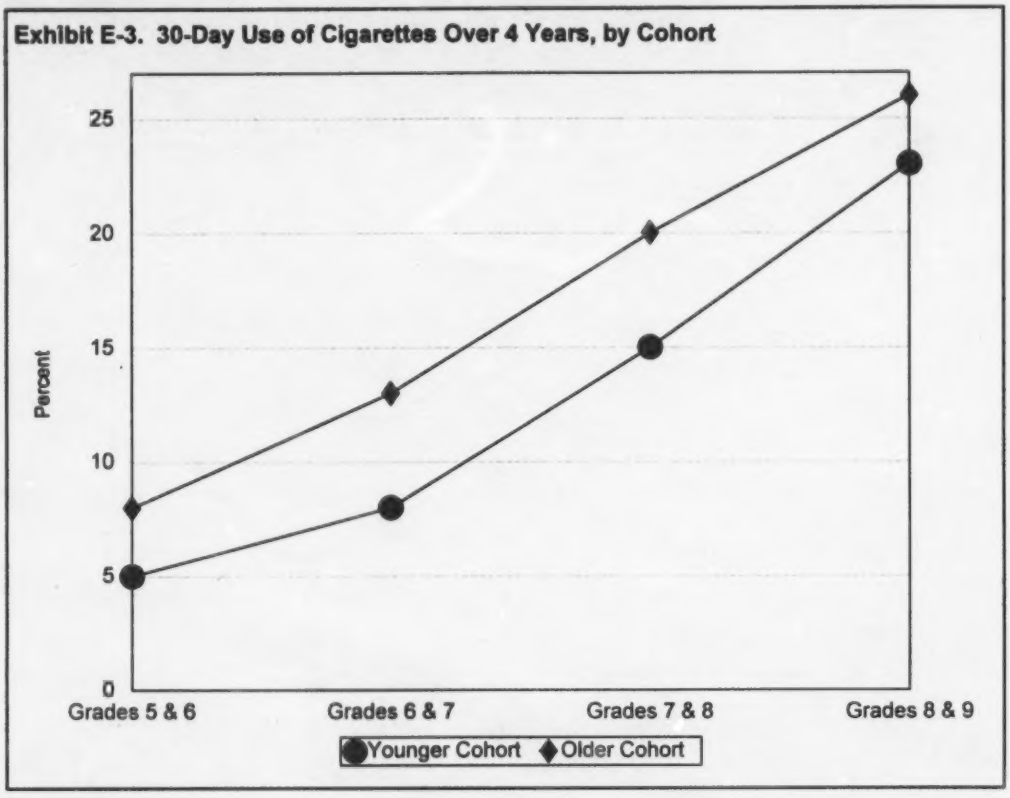


graders) and 41 percent of the older students (sixth graders) had already tried alcohol in year 1. By the end of four years, this figure had nearly doubled for the younger group to 64 percent and had risen to 70 percent for the older group.

Cigarettes. Cigarette smoking also held a powerful attraction for study participants, as one student's comment indicated, "I do smoke cigarettes and I know it's stupid. I am addicted to it and I can't quit." Whereas only five percent of fifth graders and eight percent of sixth graders were current cigarette smokers (i.e., had smoked cigarettes in the past 30 days) in year 1, 23 percent of the younger students and 26 percent of the older students were current users as eighth and ninth graders (***Exhibit E-3***).

Marijuana. Across the nation, the use and popularity of marijuana began an upwards shift noted in 1991 by several national studies, and this was echoed in the results we observed for students in this study. Whereas relatively few students were smoking marijuana in year 1, 18 percent of students were current users as eighth and ninth graders in year 4 (i.e., had used marijuana in the previous month) and five percent had used marijuana at least ten times during that period ("heavy use").

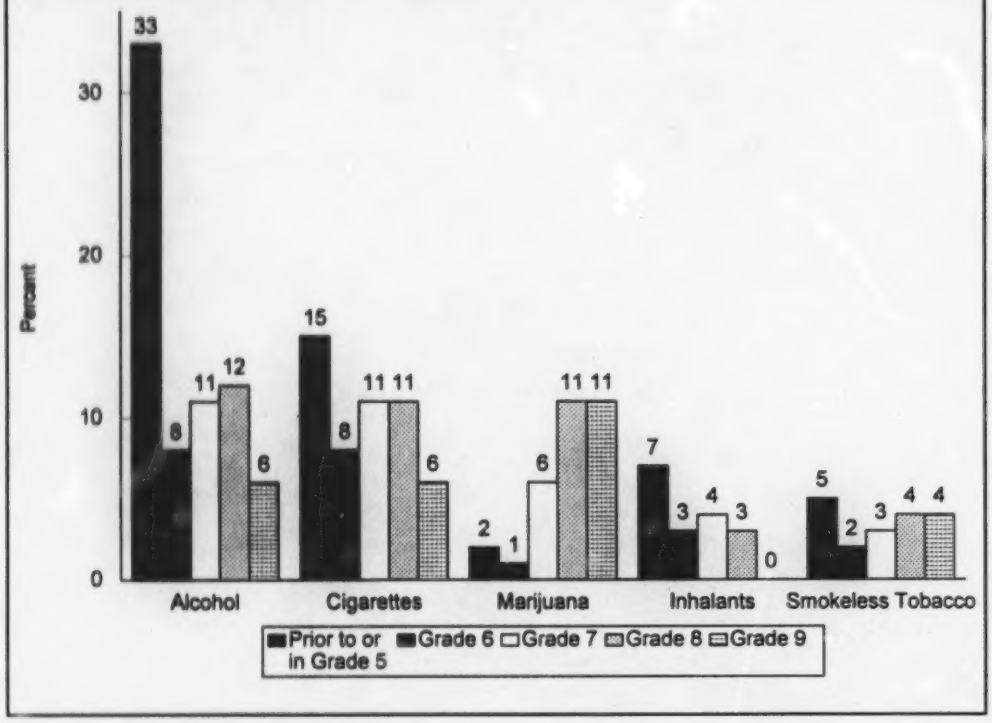
Exhibit E-3. 30-Day Use of Cigarettes Over 4 Years, by Cohort



Inhalants. A second drug that came to the forefront at the national and local levels during the course of this study is inhalants. During site visits made by RTI in 1993 and 1994 (years 2 and 3) to participating districts, school staff reported greater awareness of the use of this drug among middle and high school students, and both national and local newspaper articles warned of the unsuspected harmful nature of inhalants. Nine percent of all study participants had tried these as fifth and sixth graders, and 17 percent had done so by the time they reached the eighth and ninth grades (1995). The heightened use of inhalants was not uniformly experienced at all 19 districts but was more pronounced for some districts than for others.

First use of alcohol and other drugs. Alcohol was not only the most widely used substance (more, widely used, even, than cigarettes) for students at any grade level but it was also the first drug that most students tried, as shown in ***Exhibit E-4***. One third of the surveyed students first used alcohol prior to, or while in grade 5; another 37 percent used alcohol for the first time in higher grades, including ninth grade. About 15 percent tried cigarettes, 7 percent tried inhalants, and 5 percent tried smokeless tobacco also at an early grade. Marijuana appears to be among the drugs with which students experimented at later grades, beginning in grade 7 and continuing into grades 8 and 9. On the

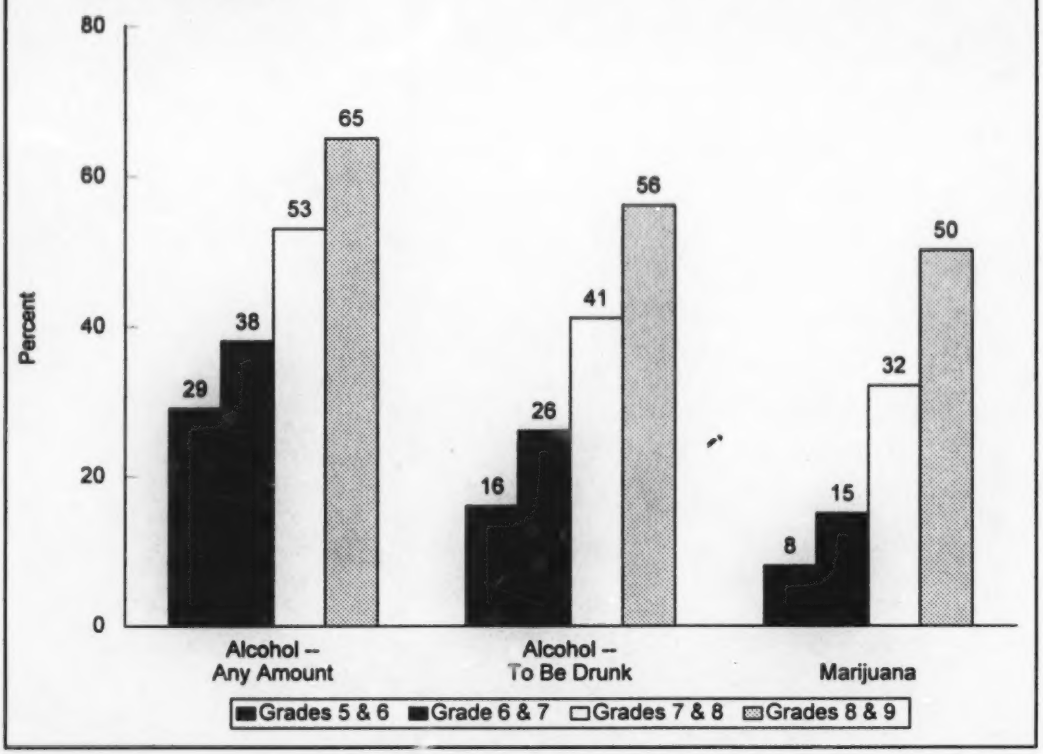
Exhibit E-4. Grade for First Use of Drugs



other hand, students were more likely to try inhalants for the first time in the early grades rather than at later grades.

Perceived peer use of drugs. In the view of several prevention researchers and practitioners, students tend to overestimate the proportion of their peers who use drugs and, further, this incorrect estimate contributes toward a willingness on the students' part to try drugs. Correcting these unrealistic normative views is the focus of some prevention programs. To investigate students' perceptions of peer drug use, our survey asked students to state their beliefs about their friends' use of drugs in the last 30 days. ***Exhibit E-5*** shows the percentage of students who believed at least some, if not all, of their friends used marijuana or alcohol or were drunk in the 30 days prior to the survey. Each year, substantially more students thought their friends were using drugs. In grades 5 and 6, 29 percent of all students thought their friends drank alcohol in the 30 days prior to the survey, compared with 65 percent who thought the same in grades 8 and 9. When asked how many of their friends got drunk in the past 30 days, 16 percent of students in grades 5 and 6 thought that some or all their friends did that, compared with 56 percent who held the same belief in grades 8 and 9. The strength of that perception among students was illustrated in a comment written on a survey: "I know lots of people

Exhibit E-5. Percent of Students Who Believed Some of Their Friends Used Drugs in the Last 30 Days



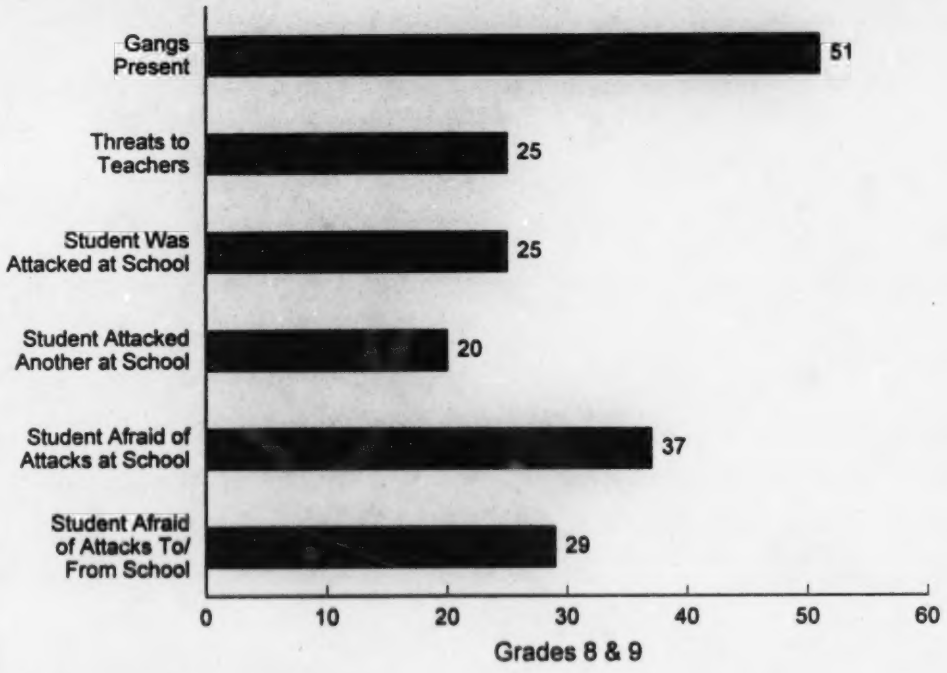
who get drunk every day in this school, more than half the school." With respect to marijuana use, eight percent of grade 5 and 6 students thought some or all of their friends used marijuana during the last 30 days, compared with 50 percent who thought the same in grades 8 and 9.

Interestingly, these perceptions of peer drug use greatly overestimated the 30-day drug use that students reported during this same time period. Whereas 50 percent thought their friends used marijuana recently, only 18 percent of study participants reported using marijuana in that time period. The same was true for perceptions of alcohol use: 65 percent thought their friends used alcohol recently while 37 percent reported actual use for the same time period. While it is true that the study participants may not have been the "friends" these students referred to, their responses are indicative of the contrast between actual and perceived drug use.

Relationship of Violence and Gang Activity, School Experiences, and Use of Time to Student Drug Use

Violence. Twenty to fifty percent of students surveyed in 1995 (eighth and ninth graders) had witnessed or experienced some type of violence in school (see ***Exhibit E-6***). Over half (51 percent) of

Exhibit E-6. Percent of Students Reporting Violence and Gang* Activity at Schools (1995)



*The survey did not define "gang."

the students said that gangs were present at their school. Twenty to twenty-five percent of the students witnessed threats to teachers, were victimized by a student, or were themselves involved in attacks against other students. Further, 37 percent acknowledged being afraid of such attacks at school and 29 percent said they feared such attacks when traveling to and from school. As one student wrote on his survey, "I don't like how dangerous it is at this school. I just wish the teachers and the rest of the school staff would have better control over their students and keep kids like me safe."

Violence was less prevalent in rural districts than in either suburban or urban districts; students attending rural schools reported much fewer incidents of threats against teachers and somewhat fewer incidents of attacks against students, involvement in fights, and fears when going to and from school. One aspect of violence that appears equally likely in rural schools as in other schools is gang activity; 50 percent of students in rural districts (the same as reported in suburban districts) said there were gangs at their school. As one student commented, "I really like this school, but I would like it a whole lot better if it weren't packed with gangs. They are ugly and they scare me." Students attending rural schools were also as concerned with safety from attacks at school (38 percent) as were students attending suburban (36 percent) or urban schools (37 percent).

To examine the relationship between these indicators of school violence and student drug use, we looked at the joint contribution (using multiple regression analyses) of these and other factors in statistically predicting drug use by our eighth and ninth graders. ***Students who attended schools in which either gangs or violence (or both) were reported were significantly more likely than other students to use drugs, and they held more tolerant views towards drugs.***

School experiences. As eighth and ninth graders, approximately 35 percent of the students said they enjoyed school often or almost always, while 37 percent said they hated school. Classes were interesting most of the time for 30 percent of the students, but 23 percent found the school work too difficult to understand. We created a composite score indicating how positive the student's school experiences were, and we found that the more positive a student's experience the less likely that student was to be using drugs or to have used drugs in the past. This correlation between school experiences and drug use does not necessarily imply that one caused the other, merely that they are related. The correlation between the composite school experience score and student outcomes in the final year of the study are shown in ***Exhibit E-7***. We note that, for each outcome measure, more positive school experiences are strongly associated with better outcomes.

Students' use of time. As an indicator of the relative time students allocated to homework compared to non-academic activities, we asked students to indicate the amount of time they spent each day in either of two activities: (1) doing homework either at school or at home; and (2) watching

Exhibit E-7. Correlations Between School Experience[a] and Student Outcomes in Year 4

	Correlation with Positive School Experience
Lifetime exposure to drugs in Year 4	-.44***
30-day exposure to drugs in Year 4	-.44***
General attitudes towards drugs	.48***
Attitudes towards specific drugs	.47***
Perceived peer attitudes	.24***
Self esteem	.38***
Resistance to peer pressure	.23***
Perceived consequences of drug use	.39***

[a] Scores on items indicating negative experiences were reversed such that larger values on the composite variable indicated a more positive school experience.

***p<.0001

television or videos, or playing computer or video games. We then examined the relationship between their use of time (as measured by these two variables) and drug use. ***Students who spent more time on homework were less likely to be using drugs,*** and students who spent more time on television and video games were more likely to be using drugs.

Drug Prevention Programs and Their Effects on Student Outcomes

Having discovered that the study's prevention programs varied greatly within districts, and finding that our original classification of district programs into comprehensive and noncomprehensive groups was not as valid as we had hoped, we searched for other ways to classify and evaluate programs or aspects of programs. We decided to focus on four factors that appeared to us to reflect dimensions of program quality and strength: (1) program rationale and degree of stability, (2) extensiveness of program components (i.e., the number and extent of program components and the number of students served by them), (3) staff training, and (4) parental and community involvement and support. Our original conception of program "comprehensiveness" contained each of these factors, as well as serving all students in the district in a coordinated fashion. Thus, when we were forced to concede that none of the selected districts had achieved real comprehensiveness, we turned our attention to these separate factors.

Project staff evaluated the programs in the 19 participating districts along these four dimensions, rating each district's program on a five-point scale for each factor. We also created a combined score (the sum of the four factors) called program strength. District scores on program strength ranged from 7 to 18 points out of a possible 20 points.

Exhibit E-8 presents the total score for each district, as well as scores on each factor. To further illustrate the variation among districts on these dimensions and to demonstrate the degree to which our original classifications of "comprehensive" and "comparison" programs overlapped, we present ***Exhibits E-9*** and ***E-10***. In these figures, the boxes with the dark shading represent districts originally categorized as comprehensive.

When we looked at the relationship between each of these program factors and student outcomes, stability and program extensiveness appeared to have a positive effect. ***Prevention program stability*** was associated with more anti-drug attitudes and better recognition of the consequences of drug use. ***Prevention program extensiveness,*** defined as the number and extent of program components and the number of students served by them, ***was associated with benefits for students***: significantly lower lifetime use of drugs, more anti-drug attitudes, and better recognition of the

Exhibit E-8. District Scores on Dimensions of Program Strength, Arranged in Descending Order of Strength

District[a]	Dimensions of Program Strength				Total Score
	Stability	Program Extensiveness	Staff Training	Parent/Community Support	
C-12	5	5	4	4	18
C-4	5	3	5	4	17
C-15	3	3	4	3	13
C-5	3	5	3	2	13
C-9	4	4	3	2	13
C-14	4	3	4	2	13
M-1	4	3	2	4	13
C-13	5	3	2	2	12
M-6	3	2	3	3	11
M-16	4	2	1	4	11
M-18	3	2	2	3	10
M-2	2	1	3	3	9
M-8	3	2	3	1	9
M-7	2	2	2	3	9
M-19	2	1	4	2	9
C-17	2	2	3	2	9
M-11	2	2	2	2	8
M-10	2	3	2	1	8
M-3	2	1	2	2	7

[a] C=Comprehensive program, M=minimal or Comparison program. Scoring for each dimension was made on a 1-5 scale, where 1=non-existent or minimal and 5=extensive.

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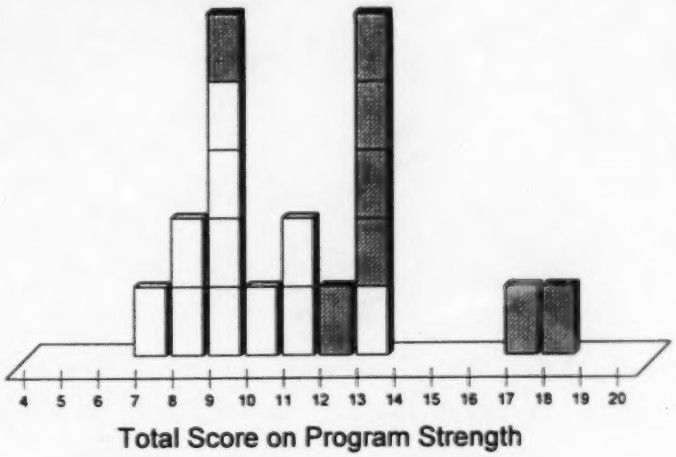
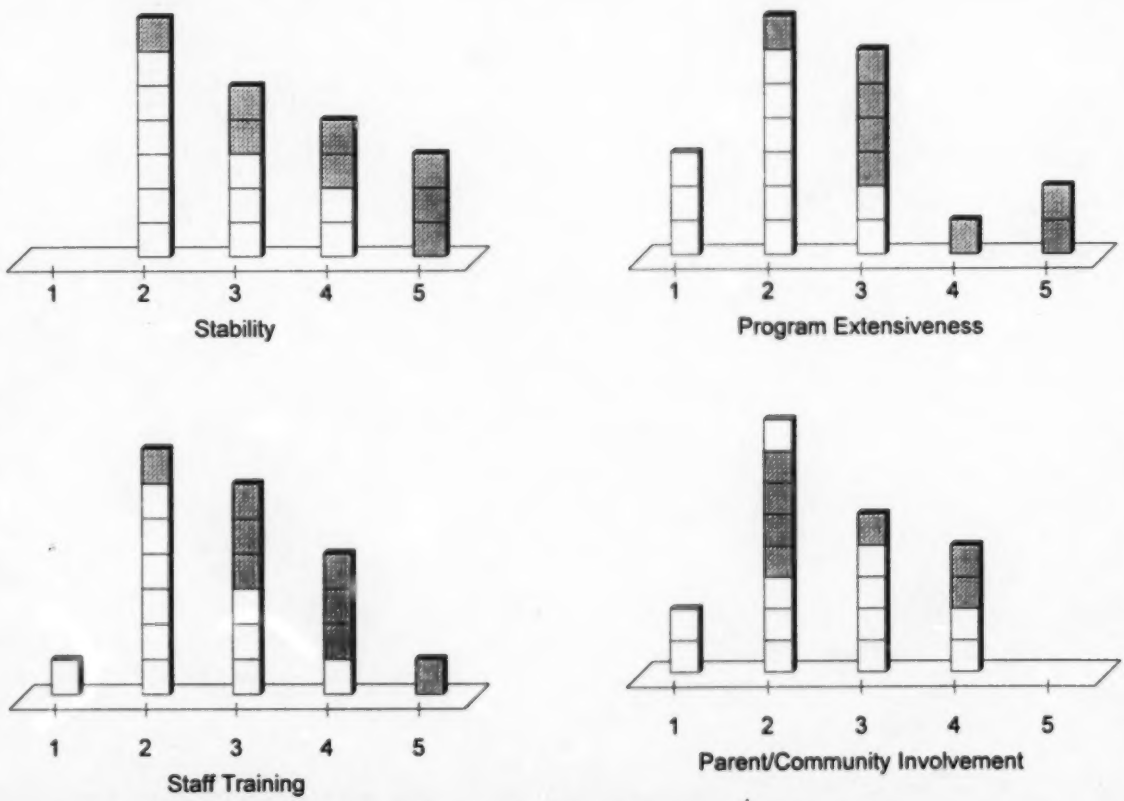
Exhibit E-9. Distribution of District Prevention Programs' Scores on Program Strength



Each box represents one district; shaded boxes represent districts selected as comprehensive

Exhibit E-10. Distribution of District Prevention Programs' Scores on the Four Factors of Program Strength



Each box represents one district; shaded boxes represent districts selected as comprehensive

consequences of drug use. These findings were statistically significant and worth noting, but they represented quite small differences in student outcomes. We repeat, however, that the variability in program delivery at the school and classroom level would act to diminish the effects of an overall district program.

Factors affecting the programs. Since we observed such variability in how well and how extensively prevention programs were implemented in individual schools, we examined our case study data for clues to underlying factors that might help or hinder program delivery. Based on our annual visits to the districts during the course of the longitudinal study, we compiled a list of factors that appeared to facilitate a prevention program's implementation. We do not have direct evidence of the effect of these factors on program outcomes. The factors we identified include:

- The level of commitment of the program implementors,
- Leadership provided by the prevention program coordinator,
- Community involvement in the program and a sense of shared responsibility for drug prevention and for developing long-term solutions,
- Additional district staff to assist the prevention program coordinator, and
- Recognition at the district level of the importance of reinforcing a school-level commitment to prevention, through the use of school-based prevention coordinators, and emphasis on prevention staff training.

The most common barrier to achieving full implementation of prevention programs is a lack of leadership by the program coordinator, a situation frequently exacerbated by the coordinator having other responsibilities within the district. Other barriers include: program coordinators who do not consistently follow through to monitor the activities being implemented in the schools; a lack of awareness by the program coordinators or other district administrators of the full spectrum of prevention strategies that might be employed; community members who do not believe there are drug problems among their youth; and other district priorities that — while they may be desirable for other reasons — interfere with prevention efforts. In districts we studied, such factors included academic-related concerns, teacher contract negotiations, and site-based management.

Student participation in the prevention programs. We now turn to the critical issue of what the intended recipients (the students attending these schools) actually received from the programs or what they perceived they had received. Of the five program components about which we asked questions on the survey[10] (D.A.R.E., other classroom instruction, student support, peer-led programs,

[10]Survey questions were tailored to each district and used program or activity names the students would recognize within their own district.

and special events), more students said they participated in prevention-related special events (71 percent) than in any other aspects of the prevention program. These events might include an annual Red Ribbon Week during which students sign a pledge to remain drug-free, occasional assemblies, presentations, or other awareness-raising activities, drug-free parties, and the like. Furthermore, 7 percent of the students surveyed said this was the **only** type of drug prevention activity in which they had participated in their district. ***Exhibit E-11*** indicates the percentage of students who reported participation in D.A.R.E., other classroom-based prevention instruction, student support, peer-led programs, and special events in each district.

Students who said they had participated in either or both of the following activities had better outcomes:

- Prevention-related classroom instruction other than D.A.R.E.
- Special school-wide events that focused on prevention.

Exhibit E-11. Percent of Students Who Reported Participation in Specific Program Components

District	D.A.R.E	Other Classroom Instruction	Student Support	Peer-Led Programs	Special Events
1	94				[c]100
2	87		32	50	80
3	[a]0	97			
4	96				46
5	90				89
6	93		3	[a]0	22
7	96	20	23	29	[c]100
8	[a]0	19	4	40	
9	95				60
10	[a]0		6	34	62
11	53		13	[b]0	92
12	58				
13	57				
14	75	32			8
15	91		38	55	69
16	25		20	26	[c]100
17	90		63	50	
18	60		74	22	27
19	83				88
All Districts	65	67	31	32	71

Note: Shaded sections indicate components that the district coordinator considered central to the district prevention program.
[a] Component is not offered in this district.
[b] No question asked in this category. Assumed 0 percent because component was only available to few students.
[c] No question asked in this category. Assumed 100 percent participation for district.

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Conclusions

While the study does not reveal which specific forms of classroom instruction (in terms of curricula, content, or teaching methods), how much instruction, or which student support services were most effective, what we found is potentially very useful to school program decision makers. Synthesizing the above findings about program dimensions, student participation, and outcomes, we conclude that district programs need to be **stable** (in place for a long period of time, with continuity of staff, planning, and leadership) and **extensive** (have multiple components that target both the general student population as well as high-risk students and that include student support services), and — in light of the findings on student participation above — they especially need to provide prevention-related classroom instruction and school-wide special events. We also believe that the study's findings raise a number of important issues related to program improvement as well as to the practical conduct of research on program effectiveness. Below we discuss several of these issues.

Delivery of drug prevention curricula is not uniform within districts or schools, and it is difficult to measure the amount of drug prevention education that is actually delivered. In most districts, classroom prevention activities were implemented by teachers but because of time constraints, lack of resources, and the pressures to focus on teaching the basic subjects, program delivery was often inconsistent from one teacher to another, and program elements were not delivered in their entirety. Particularly in school districts with decentralized administration of the prevention program, teachers received differing messages about priorities and they used considerable discretion in how much and when to teach classroom components of the program. We found it extremely difficult to measure actual amounts of drug prevention delivered to students in a given year and to compare across districts. Students' responses to questions regarding their participation in drug prevention education in the classroom did not always yield the same picture of overall student participation for a given district as that described by program staff and observed by RTI staff. Current experts in the field of drug prevention say that inconsistent or incomplete delivery of the prevention curriculum is one of the main reasons why even those approaches that have proven effective under test conditions may not show positive results when implemented elsewhere.[11] Their theory is that "incomplete treatment" weakens the potential effectiveness of the prevention program.

Based on this research and other current research, several factors appear to be important for increasing the likelihood that a program will be delivered faithfully, as intended by the authors of the curriculum. First, teachers must be given proper and sufficient training so they will be confident and

[11]Rohrbach, L.A., D'Onofrio, C.N., Backer, T.E., & Montgomery, S.B. (1996). Diffusion of school-based substance abuse prevention programs. *American Behavioral Scientist*, 39 (7), 919-934.

prepared to deliver the program. Many of the approaches that aim to teach students how to resist and deal with social influences, for example, require teaching methods that are very different from the traditional methods that most teachers employ in their classrooms. These approaches utilize role-playing, small-group discussion, and other interactive methods and often use peer leaders to deliver portions of the program. Teachers may be more reluctant to use these types of approaches because they require more intensive training, more time in the classroom, and more planning. Second, the teacher's role in the delivery of the drug prevention program must be supported by the school administration, including providing sufficient time and resources to perform this task. Third, drug prevention education must be made a priority at the school.

Drug prevention approaches that have been shown to be effective are not widely used, while approaches that have not shown evidence of effectiveness or have not been evaluated properly are the most common approaches currently in use. The consensus of the current research literature in the area of drug prevention is that certain approaches, such as those that teach children how to resist and deal with powerful social influences for using drugs and that alter the misperceptions of peer drug use, have the best chance of making a difference for students.[12] Unfortunately, these types of approaches are not among those currently in use at most school districts across the country. Experts say that there are various reasons for this, including poor marketing of the research-based curricula, heavy marketing of other approaches, not enough resources to place new curricula in schools, the need for teacher training in non-traditional, interactive teaching methods such as role-playing, and the overwhelming demands on teachers' time.[13]

Few districts seem to know about or consider research findings when planning their prevention programs. In fact, we observed only a few districts in which program staff or administrators engaged in a well-defined process of developing their programs. Such a process would include (1) assessing the problems of students in the district's schools and in the community; (2) setting priorities for how to address these problems; (3) reviewing relevant research that links these problems and priorities to effective strategies; (4) selecting strategies that appear to have promise for their district; (5) providing the leadership and training necessary to implement the selected strategies; (6) assessing progress in

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[12]Donaldson, S.I., Sussman, S., MacKinnon, D.P., Severson, H.H., Glynn, T., Murray, D.M., & Stone, E.J. (1996). Drug abuse prevention programming. Do we know what content works? *American Behavioral Scientist*, 39 (7), 868-883.

Hansen, W.B. (1992). School-based substance abuse prevention: a review of the state of the art in curriculum, 1980-1990. *Health Education Research*, 7 (3), 403-430.

[13]Rohrbach, L.A., D'Onofrio, C.N., Backer, T.E., & Montgomery, S.B. (1996). Diffusion of school-based substance abuse prevention programs. *American Behavioral Scientist*, 39 (7), 919-934.

meeting the needs identified in step 1; and (7) adjusting program strategies accordingly. Unfortunately, as we have noted above, there are many barriers to such a thorough planning and implementation process, not the least of which is a shortage of resources.

Few districts also conducted formal program evaluations to assess their program's effectiveness and identify areas in need of improvement. While all the school districts we studied conducted periodic informal assessments of program activities or components, only half the districts had conducted more formal program evaluations that involved the collection of both process and outcome data. Further, only a few of those districts used the results of the evaluations to improve their programs. In several districts that did conduct evaluations of their programs, limited resources precluded staff from implementing the kind of program suggested by the evaluation. Several factors appeared to contribute to the lack of program evaluation efforts. In the case of districts with limited prevention funds, service provision necessarily took priority over evaluation activities. Another barrier to conducting evaluations is that district and school drug prevention staff in most districts do not have the requisite skills to design evaluations, analyze the data, interpret the results, and re-evaluate the program. Most of the districts were in need of technical assistance in designing and conducting evaluation efforts.

Funding is inadequate in most school districts for implementing the types of prevention programs that schools need. DFSCA funds for implementing the drug prevention programs averaged $6 to $8 per pupil for the districts in the study. This amount was similar to the average DFSCA funding in school districts nationally during this period. Although some of the school districts were able to locate additional sources of funding for prevention, total funding from all sources was typically no greater than $10 per student, including all sources. In 11 of the 19 districts DFSCA was the only source of funding, and district administrators stressed that without this funding they would not be able to carry out the program they had in place.

Most school districts we visited were quick to point out the inadequacy of the funds they received. Limited funding almost always means that schools and districts must make some difficult choices concerning what and how much to implement in a drug prevention effort. The school districts with the least amount of funds found they could only teach drug prevention education at certain target grades but not at other grades, or had to rely heavily on the D.A.R.E. program[14] to provide basic prevention education in a few grades. Often, these programs must choose between serving the entire

[14]For most districts in the study, and during this time period, D.A.R.E. programs were supported wholly or in part by the local or state enforcement agencies.

school population very broadly with school-wide activities like Red Ribbon Week, or concentrating on serving only the most at-risk children with one or two activities such as support groups or counseling. School districts in this study saw a reduction in their prevention budgets during the last several years of the study, making it yet more difficult to maintain the drug prevention efforts in place. The two aspects of drug prevention programs that we found to be linked to positive outcomes for students — program stability and extensiveness — are ultimately related to the level and continuity of funding.

Program stability and extensiveness are difficult to achieve, given the resources available to districts and schools. In this study, we found that both program stability and extensiveness were associated with better outcomes for students. One of the aspects of program stability that appears to be key is the degree of availability of the prevention program coordinator (PPC) for directing the program. In the districts where PPCs were available full-time, the program was able to gather additional resources, solicit greater community involvement, and afford more planning and coordination. We also found that these districts offered more district-wide teacher training in drug prevention education. The majority of districts with full-time PPCs were among those with Comprehensive prevention programs. By contrast, districts with PPCs who were available only one-quarter of their time or less for directing the program tended to have programs shaped more by availability of resources and other pragmatic reasons than by careful planning and assessment. The majority of these districts had minimal program implementation.

With respect to program extensiveness, we found that, despite comprehensive programming at the district level, the actual amount of the program delivered to students was inconsistent with overall district expectations, varied greatly from school to school, and was not easily measured. This was especially true in districts with decentralized school management where schools make individual choices for the types and amounts of drug prevention programming they deliver to students. We believe that to be well implemented and have a chance to make an impact on students, prevention programs must have available a district prevention coordinator committed at least half time, if not full time. This appears to be true regardless of district size — though it is clearly more difficult for smaller districts to support a full-time coordinator. Further, the district-level program officials might play a stronger role in recommending that schools implement specific curricula and activities and in requiring schools to implement key program elements and greater amounts of prevention programming. Unfortunately, most of the districts in the study did not have sufficient funding to support a full-time PPC whose sole responsibility was planning and directing the prevention program.

Negative social influences from outside the schools are difficult to counteract, and they compete with any positive effects the school programs may have. Recent data from several national studies show that drug use among teenagers began increasing in 1991, after a period of declining drug use for this age group.[15] Coupled with this increase in drug use is a general belief on the part of young people that drugs are not harmful. Our study found evidence, among longitudinally-followed cohorts of students, of steep increases in drug use (especially marijuana), the high correlations of drug use with pro-drug attitudes, and the misperceptions of their peers' tolerance and use of drugs. In searching for an explanation as to why drug use has increased recently, experts in the field point to various social influences that may have played a role, including: more relaxed parental attitudes; media images that glamorize drug use, especially cigarettes and alcohol; and less media attention to the negative effects of drug use. In addition to dealing with drug use, schools and communities have also had to concentrate on other social problems, some of which are correlated with drug use, such as youth violence.

Data from this study also showed that students' level of drug use and attitudes towards drug use in fifth and sixth grades were highly predictive of their drug use and attitudes four years later. If drug use patterns and the behaviors and attitudes that sustain them are so well established by the end of elementary school, then prevention programs may need to focus even more attention on the earlier grades.

Additional Implications of the Findings

We believe that the findings of this longitudinal study of school-based prevention programs, and the issues raised by those findings, have some additional implications for program planners to consider, and these are presented below. The study's findings regarding student behaviors can be used to build better programs and to strive for a better fit between student behaviors and drug prevention education programs.

(1) The sensitivity of drug use behaviors, attitudes, perceptions, and general views on drug use to small (one-year) changes in age, would seem to suggest that drug use prevention programs need to be tailored to the age of the student to be effective. A program that serves a wide range of grades with the same program components may have maximal effects for one or two grades but will be much less effective at lower or higher grades.

(2) Attitudes toward drugs and perceptions of drug use by others change rapidly with increasing age. This suggests that programs must deal aggressively and proactively

[15] Johnston, L.D., O'Malley, P.M., & Bachman, J. (1996 Press Release). *Monitoring the future survey (Summary of findings through 1995)*. The University of Michigan.

with students' changing views. Also, such target measures as refusal skills and feelings of self-esteem do not change very much after fifth grade and do not appear to be very amenable to change after that age. These may not be useful targets for prevention programs or they may need to be targeted at a younger age.

(3) The powerful effects of peer drug use and attitudes were suggested by students' regard for peers as sources of information and support, and in students' beliefs about their peers' drug use and attitudes. Current experts in the field of drug prevention believe that strategies that aim to challenge such influences and misperceptions have the best chance of improving student outcomes for drug use and attitudes. Many of the prevention programs we studied were beginning to employ more peer leaders in program delivery, a strategy that experts say adds credibility to the message and boosts effectiveness by helping to alter perceived norms regarding drug use and social acceptability. Programs also sought ways to involve families and the community at large, strategies believed to improve the likelihood of successful outcomes and promote longer-lasting results. We believe that prevention programs should be encouraged in their efforts to expand these initiatives that research has found to be of value.

(4) Given the small impact of programs reported in this study, larger social influences need to be addressed in rethinking drug prevention efforts. Wide variations in student drug use in the different communities studied suggest that research should explore alternative models that can influence social norms affecting student behavior. While the school has an important role, interventions that go beyond school-based programs may be needed in many communities. This may require the integration of school-based approaches in broader community partnerships to curtail drugs. We currently lack research on how to do this effectively and what the outcomes might be.

(5) The Safe and Drug-Free Schools and Communities Act[16] (SDFSCA) program at the national level should consider supporting and encouraging more use of approaches that the research has found to be effective and less use of approaches that do not have strong evidence of effectiveness. To move towards such approaches, school programs must: (1) be made aware of new findings as these become available; (2) have the resources to implement such programs, including training for teachers in non-traditional teaching methods; and (3) receive ongoing technical assistance for these initiatives. The SDFSCA program might make specific recommendations for strategies and approaches that have the best chance of making a difference in schools and provide the financial support to make such approaches possible to implement. Without such direction, schools may not necessarily select prevention components that hold the most promise, but may opt instead for programs they can afford or programs that can most easily be implemented, given the myriad other demands on schools to respond to other social problems.

[16]As noted earlier, in the 1994 reauthorization of the program, school safety was added as a program focus.